

CLAIMS

It is claimed:

1. A method for maximizing qualities of a user network access number (NAN) list, the user NAN list comprising plural NANs, the NANs for use by a user's client device in connecting to a data network under control of a server system, the method comprising
 - storing in the server system an available NAN list of NANs available for the client device to connect to the data network, wherein the user NAN list comprises a subset of the available NAN list
 - storing in the server system connection information about connecting from the NANs in the available NAN list to the data network
 - connecting the client device to the server system
 - setting the NANs in the user NAN list based upon the available NAN list
 - setting an order for selecting the NANs in the user NAN list based upon the connection information, wherein the order is set outside of the user's control
 - disconnecting the client device from the server system.

2. The method for maximizing qualities of a user NAN list of claim 1 wherein the order setting step comprises associating ranking information with at least one NAN in the user

NAN list.

3. The method for maximizing qualities of a user NAN list of claim 1 wherein the order setting step comprises specifying an actual sequential order of the NANs in the user NAN list.

4. The method for maximizing qualities of a user NAN list of claim 1 wherein the order setting step comprises providing a sequence list which identifies the order for using the NANs in the user NAN list.

5. The method for maximizing qualities of a user NAN list of claim 1 wherein the order setting step comprises providing the client device with connection information for the NANs in the user NAN list and an algorithm for selecting the NANs based upon the provided connection information.

6. The method for maximizing qualities of a user NAN list of claim 1 wherein

the NANs are for providing the client device with a connection to the data network through plural back end networks

each NAN is associated with a one of plural back end providers

each back end network is associated with one of the back end providers

the connection information includes a cost from the back end provider for the client device to utilize the back end network of the back end provider

the back end providers permit a connection through their back end networks to the client device under the authorization of the server system.

7. The method for maximizing qualities of a user NAN list of claim 1 wherein the connection information includes location information for the NANs in the available NAN list, the method further comprising

determining a location of the client device

determining an available local NAN list based upon the location of the client device and the location information for the NANs in the available NAN list

comparing the available local NAN list with the user NAN list to identify a good NAN in the available local NAN list which is not in the user NAN list

adding the good NAN to the user NAN list.

8. The method for maximizing qualities of a user NAN list of claim 7, wherein the location information for the NANs in the available NAN list comprises an area code.

9. The method for maximizing qualities of a user NAN list of claim 7, wherein before adding the good NAN to the user NAN list, asking the user for permission to add the good

NAN to the user NAN list.

10. The method for maximizing qualities of a user NAN list of claim 7, further comprising

comparing the available local NAN list with the user NAN list to identify a bad NAN in the user NAN list which is not in the available local NAN list
deleting the bad NAN from the user NAN list.

11. The method for maximizing qualities of a user NAN list of claim 10, wherein before deleting the bad NAN from the user NAN list, asking the user for permission to delete the bad NAN from the user NAN list.

12. A method of setting an order for using network access numbers (NANs) in a user NAN list, the user NAN list comprising plural NANs, the NANs for use by the user's client device in connecting to a data network under control of an online service provider server system, wherein a connection from the client device to the data network comprises a front end portion and a back end portion, the front end portion comprising a first connection from the client device to a public switch, and the back end portion comprising a second connection from the public switch to a point of presence under control of one of plural back end providers plus a third connection from the point of presence to the data network, wherein authorization for the back end provider to establish the back end portion is by the online service provider server system, and each NAN is associated with one of the back end providers, the method

comprising

storing in the online service provider server system an available NAN list of NANs available for the user's client device to connect to the data network, wherein the user NAN list comprises a subset of the available NAN list

storing in the online service provider server system connection information for connecting from the NANs in the available NAN list to the data network, the connection information comprising at least one of (a) quality of connection information for the back end portion and (b) costs information for the back end portion

establishing a connection from the client device to the online service provider server system

transmitting an identification of the NANs in the user NAN list from the client device to the online service provider server system

setting an order for selecting the NANs in the user NAN list based upon at least one of (a) the stored quality of connection information for the back end portion and (b) costs information for the back end portion.

13. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein there is a version code associated with the user NAN list for identifying a current version of the user NAN list, and the transmitting step comprises transmitting the version code from the client device to the online service provider server system.

14. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein the transmitting step comprises transmitting the user NAN list from the client device to the online service provider server system.

15. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein the step of ordering is performed by the client device.

16. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein the step of ordering is performed by the online service provider server system.

17. The method of ordering a user's network access number NAN list as set forth in claim 12, the order setting step comprising setting the order for selecting the NANs in the user NAN list based upon both the stored quality of connection information and the stored costs information.

18. The method of ordering a user's network access number NAN list as set forth in claim 17, wherein the connection information includes an identification of a back end provider.

19. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein the available NAN list identifies a central office which serves each NAN, and the cost information for each NAN includes a cost of providing a connection from the respective central office to the data network.

20. The method of ordering a user's network access number NAN list as set forth in claim 12, wherein the stored quality of connection information comprises reliability data derived from historical quality-of-connection statistics associated with the NANs.

21. The method of ordering a user's network access number NAN list as set forth in claim 20, further including the client device providing the online service provider server system with quality of connection information, and the online service provider server system incorporating the quality of connection information from the client device into the historical quality-of-connection statistics.

22. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein the order setting step comprises associating ranking information with at least one NAN in the user NAN list.

23. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein the order setting step comprises specifying an actual sequential order of the NANs in the user NAN list.

24. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein the order setting step comprises providing a sequence list which identifies the order for using the NANs in the user NAN list.

25. The method of ordering a user's network access number NAN list as set forth in claim 12 wherein the order setting step comprises providing the client device with connection information for the NANs in the user NAN list and an algorithm for selecting the NANs based upon the provided connection information.

26. A method of connecting from a client device to a data network under control of an online service provider server, wherein a connection from the client device to the data network comprises a front end portion and a back end portion, the front end portion comprising a first connection from the client device to a public switch, and the back end portion comprising a second connection from the public switch to a point of presence under control of one of plural back end providers plus a third connection from the point of presence to the data network, wherein authorization of the back end portion is by the online service provider server system, and each NAN is associated with one of the back end providers, the method comprising

storing a user network access number (NAN) list in the client device
sequentially dialing NANs from the user NAN list based upon an order of selection
until the front end portion is established and the back end portion is authorized

wherein the order is based upon the cost of the back end portion and historical quality
of connection statistics for the back end.

27. The method of connecting from a client device to a data network of claim 26, wherein the

ordering is specified by an actual sequential order of the NANs in the user NAN list.

28. The method of connecting from a client device to a data network of claim 26, wherein the ordering is specified by a sequence list which identifies the order for using the NANs in the user NAN list.

29. The method of connecting from a client device to a data network of claim 26, the method further comprising the client device determining which NAN from the user NAN list to use next using an algorithm received from an online service provider server system.

30. An online service provider server system for controlling a connection between a user's client device and a data network, wherein the user's client device attempts connection to the data network using network access numbers in a network access number (NAN) list comprising plural NANs, the online service provider server system comprising

first memory storing an available NAN list of NANs available for the client device to connect to the data network, wherein the user NAN list comprises a subset of the available NAN list

second memory storing connection information about connecting from the NANs in the available NAN list to the data network

computer program code for connecting to the user's client device

computer program code for setting the NANs in the user NAN list based upon the available NAN list

computer program code for setting an order for selecting the NANs in the user NAN list based upon the connection information, wherein the order is set outside of the user's control

computer program code disconnecting from the client device.

31. The online service provider server system for controlling a connection between a user's client device and a data network of claim 30 wherein the online service provider server system associates ranking information with at least one NAN in the user NAN list.

32. The online service provider server system for controlling a connection between a user's client device and a data network of claim 30 wherein

the NANs are for providing the client device with a connection to the data network through plural back end networks

each NAN is associated with a one of plural back end providers

each back end network is associated with one of the back end providers

the connection information includes a cost from the back end provider for the client device to utilize the back end network of the back end provider

the back end providers permit a connection through their back end networks to the client device under the authorization of the server system.

33. A client device for connecting to a data network under control of an online service provider server, wherein the connection from the client device to the data network comprises a front end portion and a back end portion, the front end portion comprising a first connection from the client device to a public switch, and the back end portion comprising a second connection from the public switch to a point of presence under control of one of plural back end providers plus a third connection from the point of presence to the data network, wherein authorization of the back end portion is by the online service provider server system, the client device comprising

computer program code for storing a user network access number (NAN) list in the client device, wherein the NAN is associated with one of the back end providers

computer program code for sequentially dialing NANs from the user NAN list based upon an order of selection until the front end portion is established and the back end portion is authorized, wherein the order is based upon the cost of the back end portion and historical quality of connection statistics for the back end.

34. The client device for connecting to a data network under control of an online service provider server of claim 33 wherein the order is specified by an actual sequential order of the NANs in the user NAN list.

35. The client device for connecting to a data network under control of an online service provider server of claim 33 wherein the order is specified by a sequence list which identifies the order for using the NANs in the user NAN list.

36. The client device for connecting to a data network under control of an online service provider server of claim 33 wherein the client device determines which NAN from the user NAN list to use next using an algorithm received from an online service provider server system.

37. A computer program product comprising a computer usable medium having computer readable program code embodied therein for connecting a client device to a data network under control of an online service provider server, wherein a connection from the client device to the data network comprises a front end portion and a back end portion, the front end portion comprising a first connection from the client device to a public switch, and the back end portion comprising a second connection from the public switch to a point of presence under control of one of plural back end providers plus a third connection from the point of presence to the data network, wherein authorization of the back end portion is by the online service provider server system, and each NAN is associated with one of the back end providers, the computer readable program code for operating the client device to

store a user network access number (NAN) list

sequentially dial NANs from the user NAN list based upon an order of selection until

the front end portion is established and the back end portion is authorized

wherein the order is based upon the cost of the back end portion and historical quality of connection statistics for the back end.

38. The computer program product for connecting from a client device to a data network of claim 37, wherein the ordering is specified by an actual sequential order of the NANs in the user NAN list.

39. The computer program product for connecting from a client device to a data network of claim 37, wherein the ordering is specified by a sequence list which identifies the order for using the NANs in the user NAN list.

40. The computer program product for connecting from a client device to a data network of claim 37, wherein the client device determines which NAN from the user NAN list to use next using an algorithm received from an online service provider server system.